

TITLE: EVALUATION OF *IN VITRO* SAFETY, PROBIOTIC AND TECHNOLOGICAL POTENTIAL OF *PEDIOCOCCUS PENTOSACEUS* ISOLATED FROM SHEEP'S MILK

AUTHORS: FERNANDES, M.L.; NERO, L.A.; RIBEIRO, J.L.; POGGIANI, S.S.C; FERREIRA, M.A.

INSTITUTION: UNIVERSIDADE DE BRASÍLIA, BRASÍLIA, DF (CAMPUS UNIVERSITÁRIO DARCY RIBEIRO, CEP: 70910-900

ABSTRACT:

Lactic acid bacteria can add many benefits on food, such as conservation of its nutritional properties, increase in flavor and capacity to confer greater food security to the product. A microorganism to be considered probiotic needs to present safety, functionality and technological aspects. Thus, the present study seeks to *in vitro* evaluate those characteristics of *Pediococcus pentosaceus* isolates from sheep's milk. Potential safety, probiotic and technological tests were performed on six isolates (Ac1Pd, Ac3Pd, Ac4Pd, Ac5Pd, Ac7Pd and Ac22Pd) of *P. pentosaceus* from sheep's milk. Results showed that none of the isolates were able to produce biogenic amines or virulence factors. Isolates tested showed low hydrophobicity, high self-aggregation capacity and coaggregation with *Listeria monocytogenes* ATCC 7644, *Lactobacillus sakei* ATCC 15521 and *Enterococcus faecalis* ATCC 19444, but none produced β -galactosidase and bacteriocins. No growth of the isolates at pH 3 and 12 was observed and in the pH range from 4 to 10 the growth was variable. In the absence of bile, all the isolates showed growth, with suppression at concentrations of 0.1%, 0.3%, 0.6% and 1%. In the disc-diffusion test the isolates tested were resistant to oxaciclina, sulfatrimetropim and vancomycin but were sensitive to chloramphenicol and tetracycline and with variable results for penicillin G and were resistant to most of the drugs tested except for amoxicillin trihydrate and ibuprofen. All cultures showed high milk acidification capacity only after 24 hours and none produced exopolysaccharides. The isolates of *P. pentosaceus* were able to produce diacetyl, however, no culture showed extracellular proteolytic activity and the production of autolysis was varied from 21.3% to 30.5% after 24h. Isolates growth at concentrations of 4% and 6% NaCl, but the growth was lower at 10% concentration. Finally, all the isolates showed good safety, but limited application as probiotics and some aspects of technological potential.

Keywords: dairy technology, lactic acid bacteria, starter.